Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of routing one or more information query from one or more arbitrary sensor network entry points in a network of sensor nodes to one or more destination nodes in ~~the vicinity~~a vicinity of physical phenomena of interest in the network, the method comprising:

selecting a destination node by computing ~~the utility~~a utility of a plurality of network sensor nodes and selecting ~~the node~~a node with ~~the highest~~a highest utility to be the destination node;

establishing a leader node;

using a multiple step lookup procedure to determine an optimum path between the leader node and the destination node; and

routing the information query to a destination node based on the determined optimum ~~path.~~ path, wherein

the computed utility indicates information gain, and

a locus of all possible paths from a current node to the destination node forms an ellipse with the destination node as one focus point and the current node as an other focus point, the ellipse is sampled with four candidate points, and a maximum utility among four paths corresponding to the four candidate points is used as an estimate of utility of the ellipse.

2. (Currently Amended) A method of routing an information query of claim 1, wherein the multiple step lookup procedure comprises:

determining a minimum number of hops required to reach the destination node from the leader node;

determining all possible paths of the minimum number of hops or less from the ~~current~~ leader node to the destination node;

determining ~~the utilities~~utilities of all possible minimum number of hops paths;

selecting a minimum number of hops path that traverses ~~the nodes~~nodes the sum of whose utilities is the greatest; and

selecting a first node in the selected minimum number of hops path and passing leadership from the leader node to the first node.

3. (Canceled)

4. (Currently Amended) A system to route information via a network of sensor nodes from a leader node to a destination node, the system comprising:

a destination node selection mechanism, that determines ~~the utility~~a utility of a plurality of nodes and selects a node with ~~the highest~~a highest utility to be the destination node;

a processing mechanism that determines a minimum number of hops required to reach the destination node from a current leader node;

a processing mechanism that determines a number of possible paths within a specified number of hops or less from the current leader node to the destination node;

a path selection mechanism that selects ~~the m-hop~~ an m-hop path that traverses ~~the nodes~~nodes the sum of whose utilities is the greatest; and

a selection mechanism that selects ~~the first~~a first node in the selected m-hop path and passes leadership from the leader node to the first ~~node.~~ node, wherein

the determined utility indicates information gain, and

a locus of all possible paths from a current node to the destination node forms an ellipse with the destination node as one focus point and the current node as an other focus

point, the ellipse is sampled with four candidate points, and a maximum utility among four paths corresponding to the four candidate points is used as an estimate of utility of the ellipse.

5. (Canceled)

6. (Currently Amended) The system of claim 4, further ~~comprising;~~comprising: a leadership transfer mechanism that changes leadership from one node to another node.

7. (Currently Amended) A point-to-point query routing method via a network of sensor nodes including a source sensor node and a destination sensor node, the method comprising:

establishing a neighborhood around the source sensor node;

determining costs associated with communication that has already occurred along paths to neighborhood sensor nodes and costs associated with going forward along paths to sensor nodes in the neighborhood of the source node;

determining information gain based on neighborhood network sensor nodes already visited for a number of paths and to be visited for a number of paths; and

conducting an RTA* type forward search to relay from the entry point to the destination point based on the determined cost and information ~~gain.~~ gain, wherein

a locus of all possible paths from a current sensor node to the destination sensor node forms an ellipse with the destination sensor node as one focus point and the current sensor node as an other focus point, the ellipse is sampled with four candidate points, and a maximum utility among four paths corresponding to the four candidate points is used as an estimate of utility of the ellipse.

8. (Currently Amended) A method of routing information about the location of an event via a network of sensor nodes including a leader node and a destination node, the method comprising:

selecting a destination location by computing ~~the utility~~a utility of a plurality of nodes and selecting a node with ~~the highest~~a highest utility to be the destination node;

determining a minimum number of hops required to reach the destination location from a ~~current~~ leader node;

determining all possible paths within a specified number of hops or less from the leader node to the destination node;

selecting a path that traverses ~~the nodes~~nodes the sum of whose utilities is the greatest; and

selecting a first node in the selected path and passing leadership from the leader node to the first ~~node.~~ node, wherein

the computed utility indicates information gain, and

a locus of all possible paths from a current node to the destination node forms an ellipse with the destination node as one focus point and the current node as an other focus point, the ellipse is sampled with four candidate points, and a maximum utility among four paths corresponding to the four candidate points is used as an estimate of utility of the ellipse.

9. (Currently Amended) A method of routing a query about ~~the location~~a location of an event of interest via a network of sensor nodes, the method comprising:

determining a source sensor node;

establishing a neighborhood around the source sensor node;

determining communication costs, including costs associated with communication that has already occurred along paths to neighborhood sensor nodes and costs associated with going forward along paths to neighborhood sensor nodes;

determining information gain based on neighborhood network sensor nodes already visited for a number of paths and to be visited for a number of paths;

forming a belief state about the event location based on the determined communication costs and determined information gain; and

routing the query based on the belief ~~state.~~ state, wherein

a locus of all possible paths from a current sensor node to a destination sensor node forms an ellipse with the destination sensor node as one focus point and the current sensor node as an other focus point, the ellipse is sampled with four candidate points, and a maximum utility among four paths corresponding to the four candidate points is used as an estimate of utility of the ellipse.

10. (Original) The system of claim 4, wherein the sensor nodes comprise different types of sensors.

11. (Original) The system of claim 4, wherein the sensor nodes comprise acoustic sensors.

12. (Original) The system of claim 4, wherein the sensor nodes comprise seismic sensors.

13. (Currently Amended) A method of information-directed query routing along a path from a source node to a destination node in a network of sensor nodes, the method comprising:

determining a path that is ~~relatively~~ more efficient in terms of communication ~~cost;~~cost than other paths; and

maximally aggregating gain of information about ~~the event~~an event along the path; and routing the query based on the determined cost and aggregated information ~~gain.~~ gain, wherein

a locus of all possible paths from a current node to the destination node forms an ellipse with the destination node as one focus point and the current node as an other focus point, the ellipse is sampled with four candidate points, and a maximum utility among four

paths corresponding to the four candidate points is used as an estimate of utility of the ellipse.

14. (Currently Amended) A method of point-to-point routing of query information regarding a phenomenon of interest in a sensor network having a plurality of sensor nodes along a path from an arbitrary entry point node to an arbitrary exit point node, the method comprising:

establishing a leader node;

maximally aggregating information about the phenomenon of interest along the path by estimating ~~the information~~information expected to be gained from the entry point node to the ~~destination~~ exit point node;

selecting a successor leader node based on the estimated information expected to be gained; and

routing the query based on the maximally aggregated ~~information.~~ information, wherein

a locus of all possible paths from a current node to the exit point node forms an ellipse with the exit point node as one focus point and the current node as an other focus point, the ellipse is sampled with four candidate points, and a maximum utility among four paths corresponding to the four candidate points is used as an estimate of utility of the ellipse.

15. (Currently Amended) The method of claim 14, wherein estimating the information expected comprises establishing and moving a frontier and iteratively expanding ~~the nodes~~nodes on the frontier until the exit point node is reached.

16. (Currently Amended) The method of claim 14, further comprising: obtaining network node sensor measurements to refine target estimates wherein the arbitrary exit point is ~~the location~~a location of an event of ~~interest and further comprising: obtaining network node sensor measurements to refine target estimates.~~interest.

17. (Currently Amended) The method of claim 13, wherein maximally aggregating gain of information about the ~~target~~event along the path comprises finding a path that includes ~~determining~~ detours around sensor network holes and at least one path ending.

18. (Canceled)